

The Economics of Ecosystems & Biodiversity



19th May 2010

The Economics of Ecosystems and Biodiversity (TEEB)

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Rijksoverheid



MINISTRY OF FOREIGN AFFAIRS



The Economics of Ecosystems & Biodiversity



TEEB's genesis ...



“Potsdam Initiative – Biological Diversity 2010”

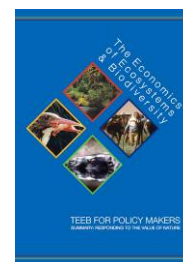
The economic significance of the global loss of biological diversity



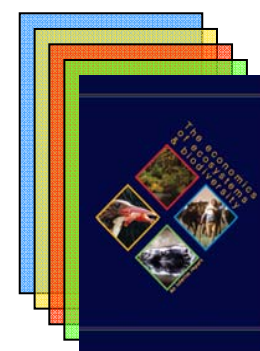
TEEB Interim Report
CBD COP-9, Bonn, May 2008



TEEB Climate Issues Update
Strömstad September 2009.



TEEB for Policy Makers
Brussels 13 Nov. 2009



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TEEB Advisory Board



Achim Steiner



Joan-Martinez Alier



Edward Barbier



Jacqueline McGlade



Yolanda Kakabadse



Lord Stern



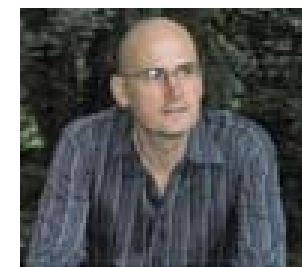
Jochen Flasbarth



Ahmed Djoghlaif



Peter H. May



Giles Atkinson



Herman Mulder



Walter Reid



Julia Marton-Lefevre



Karl-Goran Maler



Ladislav Miko

Please see www.teebweb.org for details on Advisory Board

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TEEB is ...

- ... About Economics, the Currency of Policy
- ... An evolving, multi-donor initiative, 2007-2010, begun by EU & Germany on behalf of G8, now hosted by UNEP
- ... An “Open Architecture” project... over 500 contributors (phase 1+2) across partner institutions, universities, individuals..
- ... A Maker of “Global Public Goods”: the TEEB Report suite
- ... A Catalyst of Change within Society: Economics, Accounts, Philosophy



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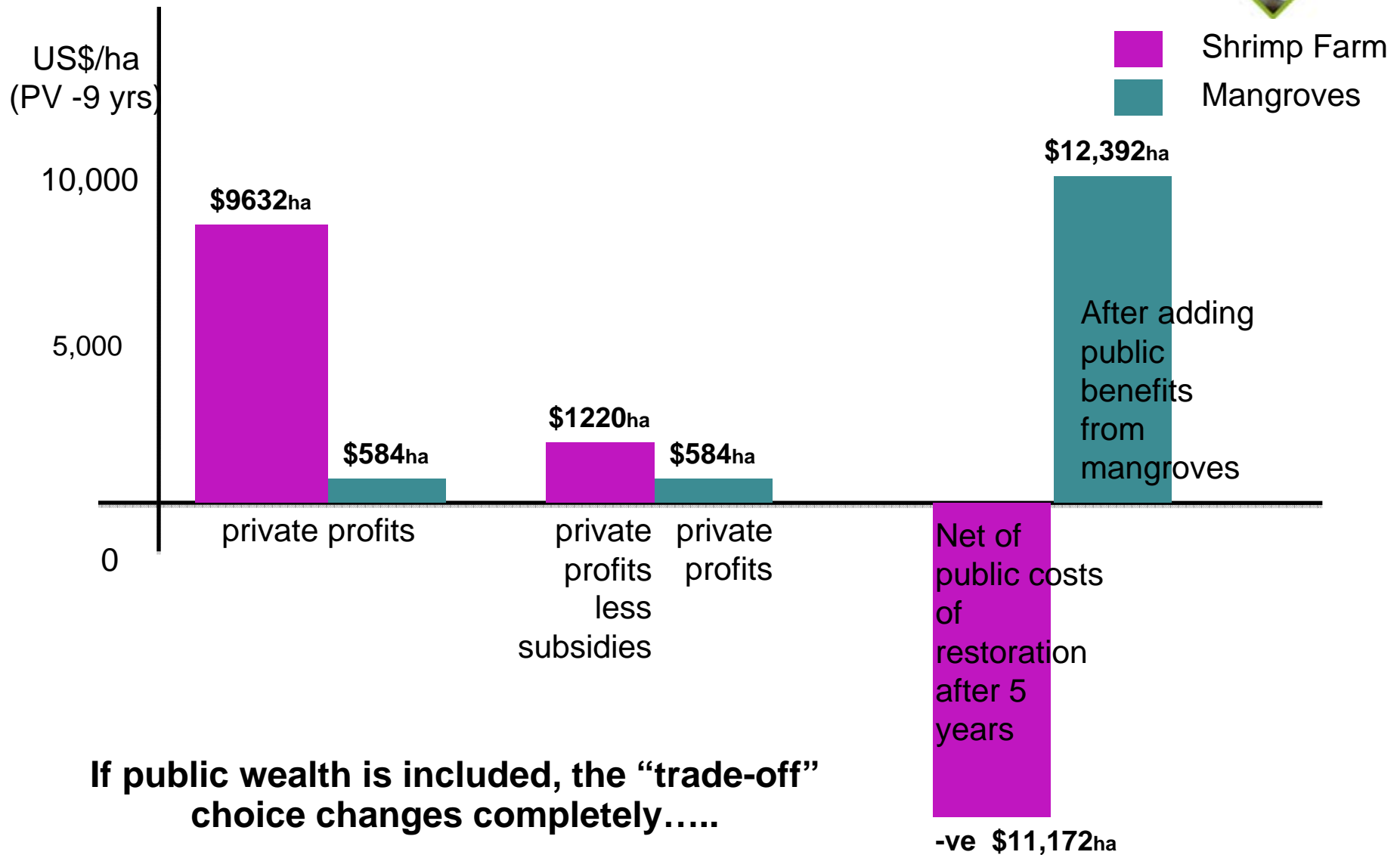
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Private Profits, Public Losses





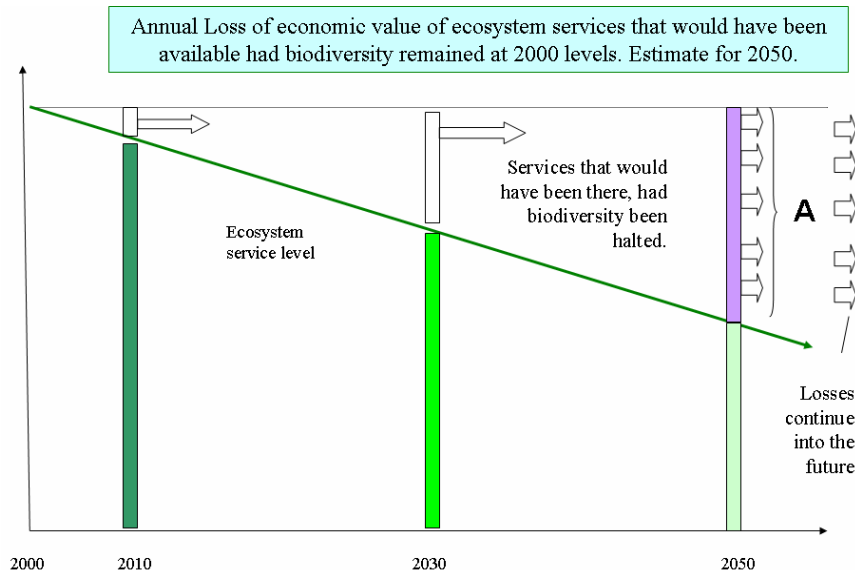
Globally ... What is the Economic
Cost of Policy Inaction ?

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“Business-as-Usual” Human Welfare Losses ...
(COPI study, May 2008, TEEB)

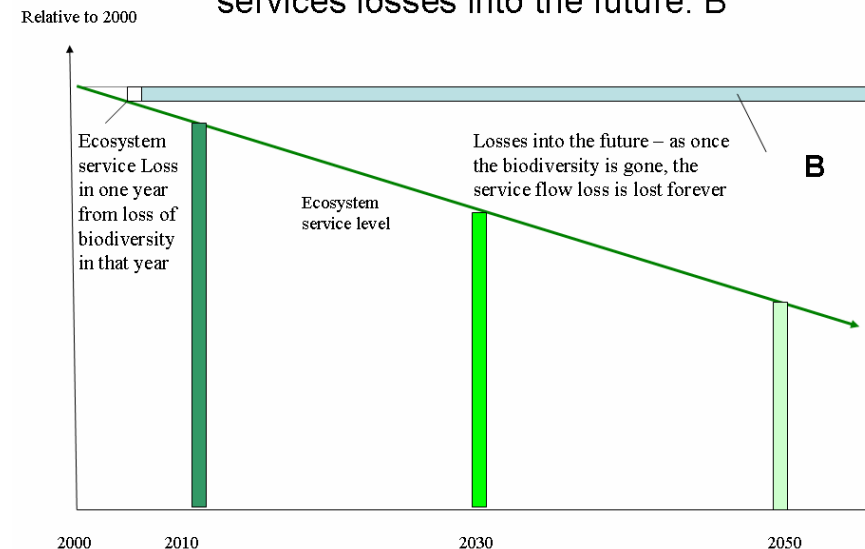
A : 50-year impact of inaction or ‘business as usual’



Welfare losses building up
to **7 % of GDP, horizon 2050**

B : Natural Capital Loss every year

Valuation and Ecosystem service losses
A year’s biodiversity loss leads to ecosystem services losses into the future: B



Natural Capital Lost : Annually

EUR 1.35×10^{12} to 3.10×10^{12}

(@ 4%
Discount Rate)

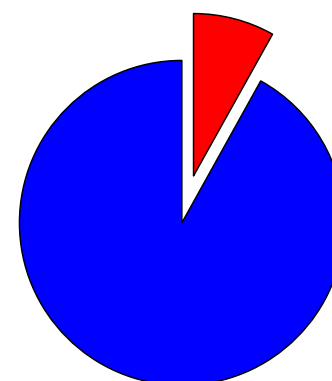
(@ 1%
Discount Rate)



Ecosystem Losses & Poverty

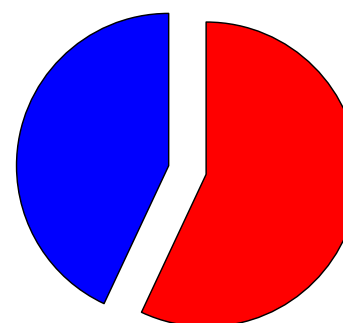
India Example: 480 Million people earn their livelihood mainly in small farming, animal husbandry, informal forestry, fisheries ...

**Ecosystem services /
classical GDP**



7.3 %

**Ecosystem services/
“GDP of the Poor”**



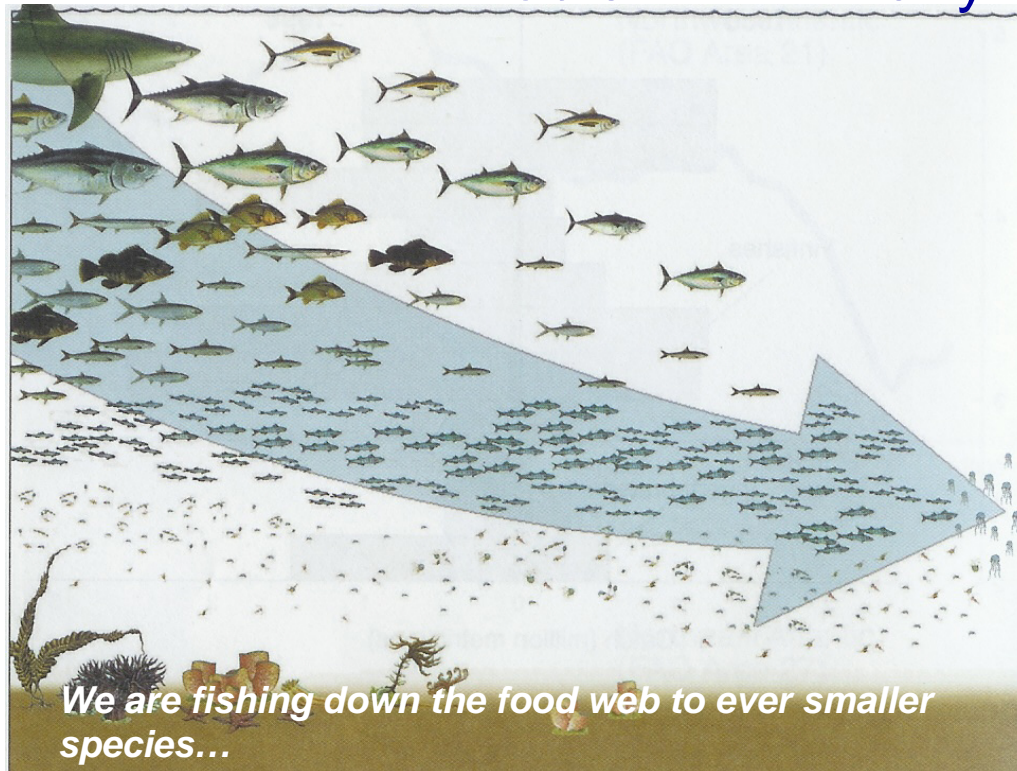
57 %

Source: GIST's Green Accounting for Indian States Project, 2002-03 data



Global Fisheries...

A Problem with Many Dimensions

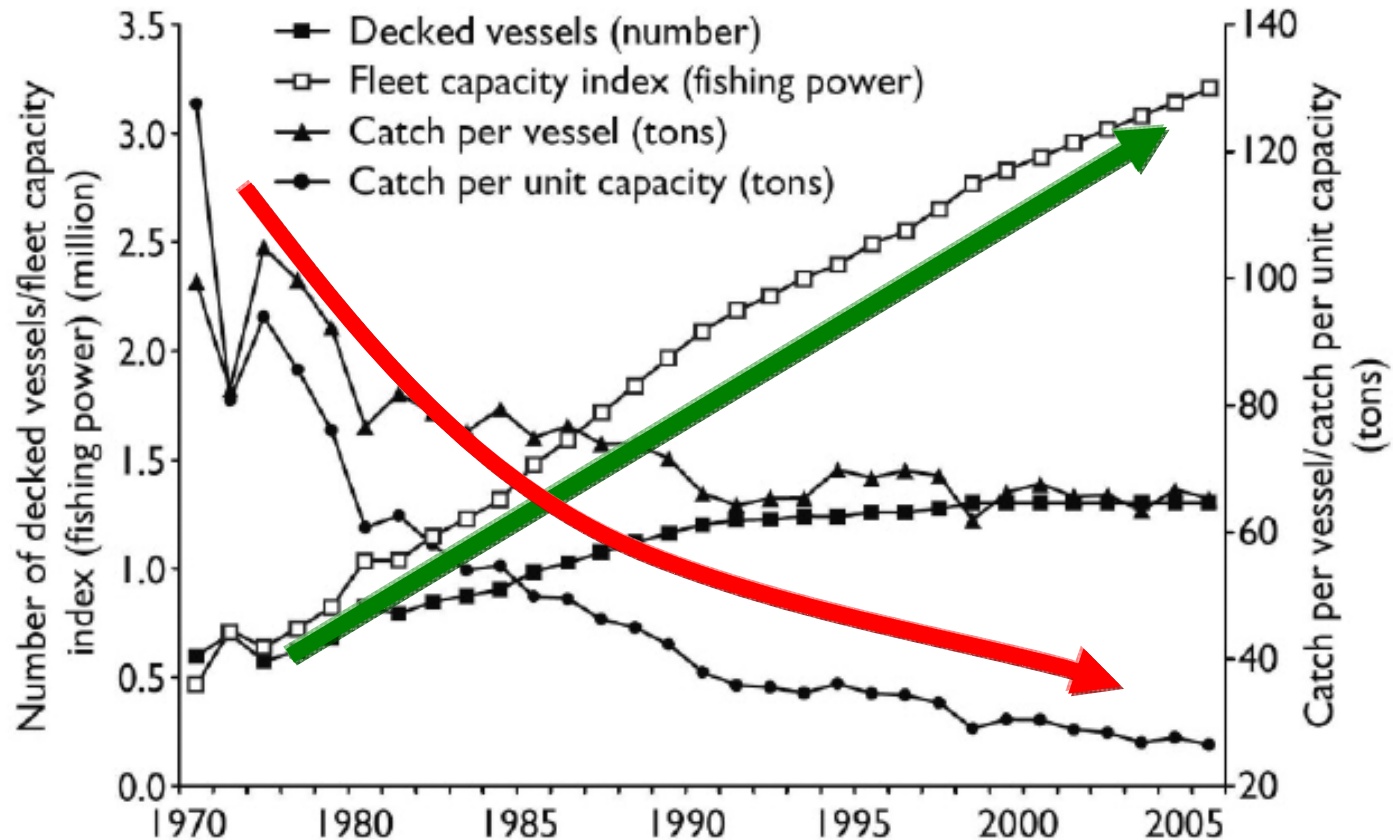


- ❑ Open Access system & Perverse Subsidies are key drivers of the loss of fisheries
- ❑ Half of wild marine fisheries are fully exploited, with a further quarter already over-exploited
- ❑ *lost productivity : est. \$ 50 billion*
- ❑ *at risk : \$ 85 -100 billion landed catch from the sector*
- ❑ *at risk : est. 35 million jobs*
- ❑ *but most important of all.....*

at risk : Health ... over a billion rely on fish as their main or sole source of animal protein, especially in developing countries



Fish Stocks vs. Fishing Capacity



World Bank estimates that net benefit losses from fisheries are 50 billion US\$ per year

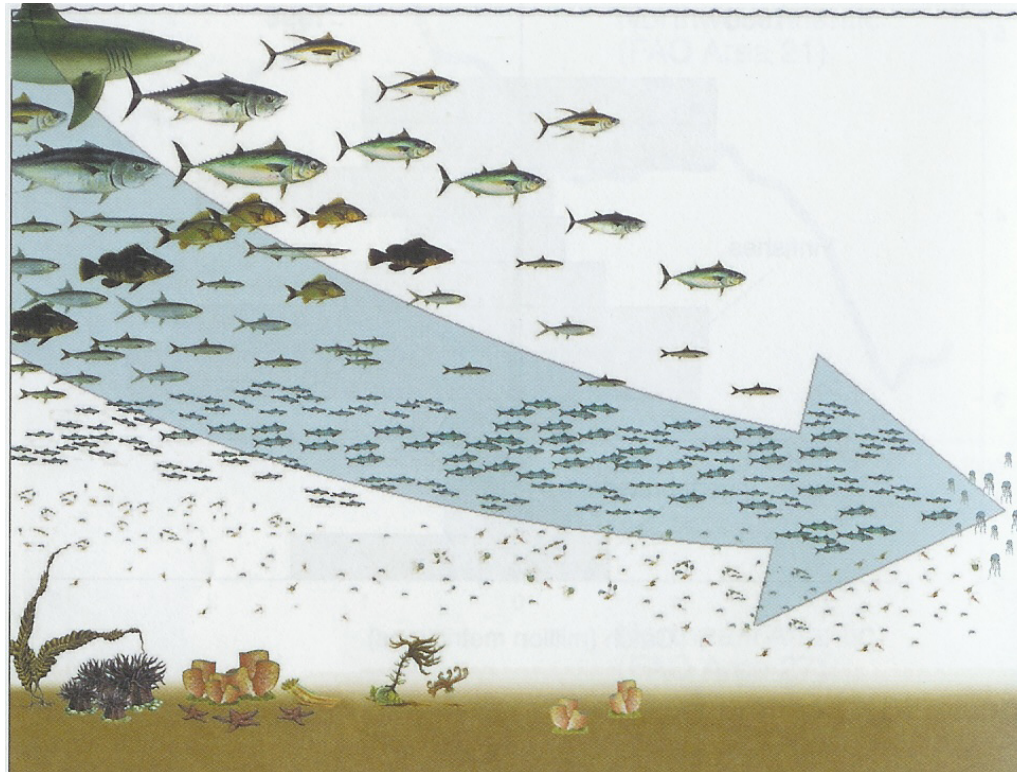


Can Economics Really Solve this Problem ?

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Global Loss of Fisheries... Is there a Solution ?



We are fishing down the food web to ever smaller species...

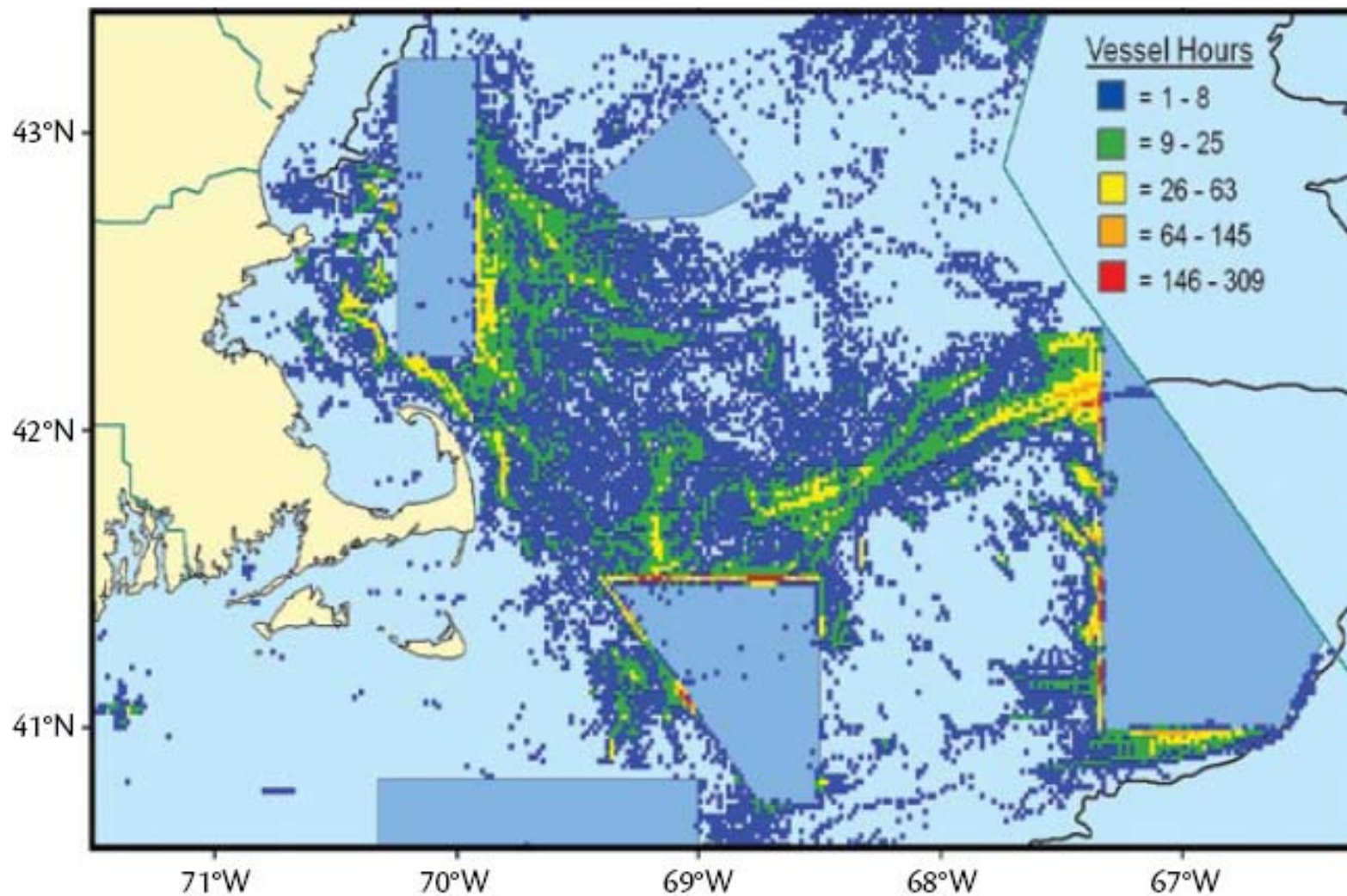


Reserves all over the world show dramatic increases in spawning stocks

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Distribution of fishing effort around Georges Bank closed areas

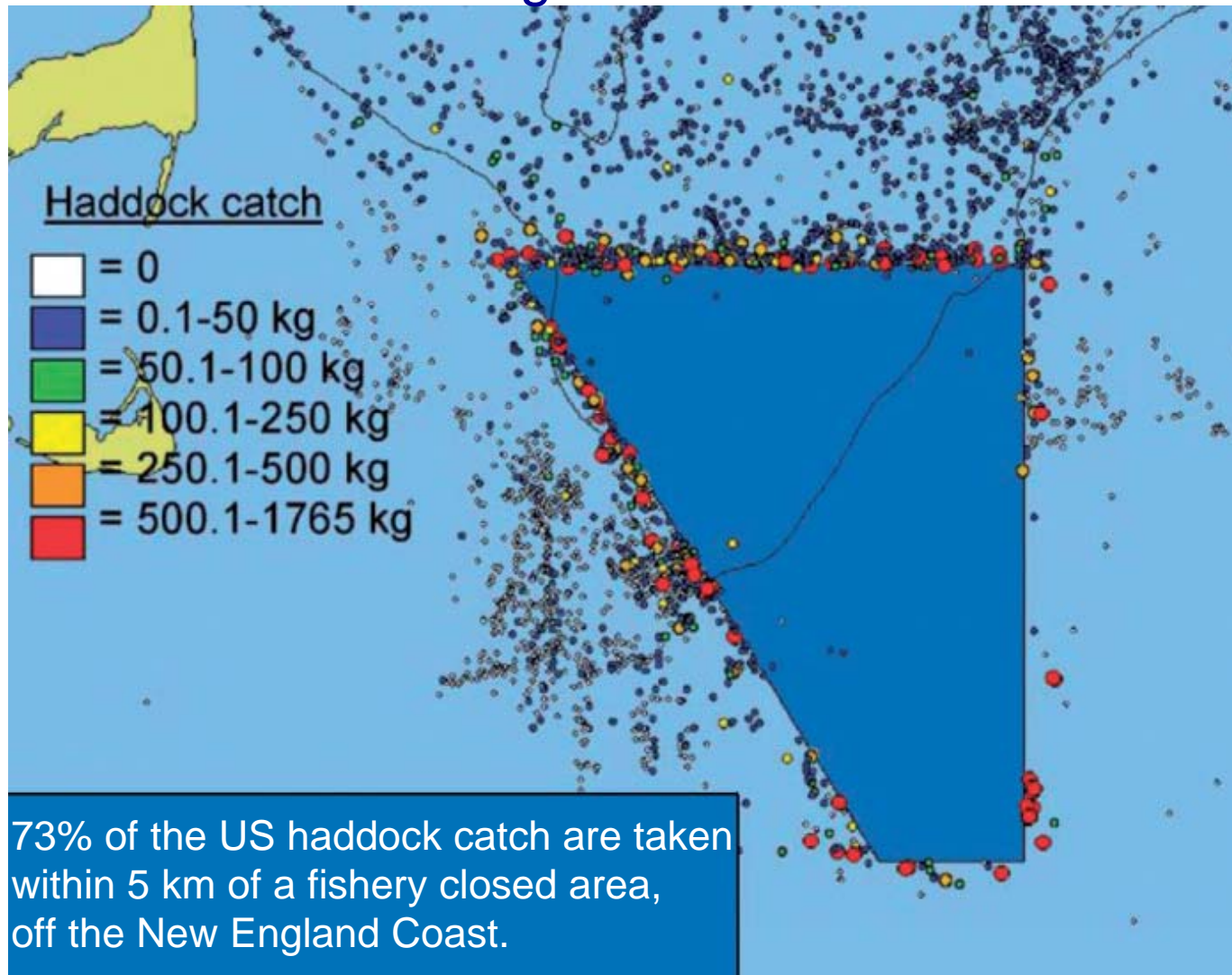


Source: Fogarty & Botsford, (2007) , *Oceanography* 20 (3); pp 112-123

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Distribution of fishing effort around Georges Bank closed areas



Source: Fogarty & Botsford, (2007) , Oceanography 20 (3); pp 112-123



Rewarding Unrecognized Benefits Does Work.... Examples

- **CORPORATE : Panama Canal** : Insurance firms and shipping companies are financing a 25-year project to reforest the catchment above the canal to secure / restore freshwater flow to its locks... the fear of loss due to closures of the Canal had been making shipping insurance premiums mount
- **GOV'T : Costa Rica** : Payments for Environmental Services are virtually a national strategy for forest and biodiversity conservation and sustainable development : over 10 years, \$ 250 million in rewards to over 9,000 farmers to maintain forest land for carbon storage, freshwater, biodiversity, & landscape
- **INVESTORS : Guyana** : A Private Equity firm recently bought the rights to environmental services from a 370,000 hectare rainforest reserve in Guyana, anticipating that its services (carbon and water storage, biodiversity maintenance, rainfall regulation, etc) will gain value over time. Revenues will be shared 80% with the local communities.

These are just a selection of the many examples we encountered ...



Payments for Ecosystem Services : Case Studies

TEEB for Policy Makers : wide range of services, locations ...

- ***Watershed management*** Mexico (a percentage of water tariff earmarked for upstream forest management), Ecuador, France, Tanzania
- ***Carbon storage*** – Uganda, Madagascar, Congo
- ***Invasive alien species (IAS)*** – e.g. South Africa (payment for IAS removal by the community)
- ***Bio prospecting*** – India (payments for traditional knowledge on medicinal plants)
- ***Biodiversity - rich agriculture*** (and certification) – El Salvador (shade grown coffee)
- ***Payments for biodiversity conservation*** – China, Cambodia, Fiji, Uganda, Madagascar
- ***Payments for sustainable forest management*** (i.e. for bundle of services) – e.g. Costa Rica, Guyana, Panama, Tanzania



TEEB – Reports for different audiences



TEEB Ecological and
Economic Foundations (D0)
www.teebweb.org



TEEB for Policy-Makers (D1)
www.teebweb.org



TEEB for Local Policy (D2)
Launch in September 2010



TEEB for Business (D3)
Launch in summer 2010

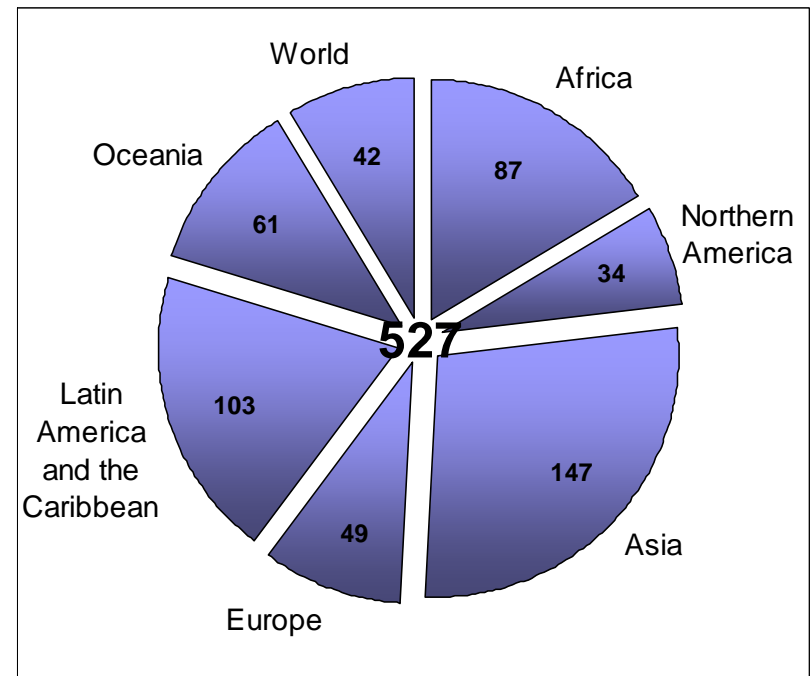
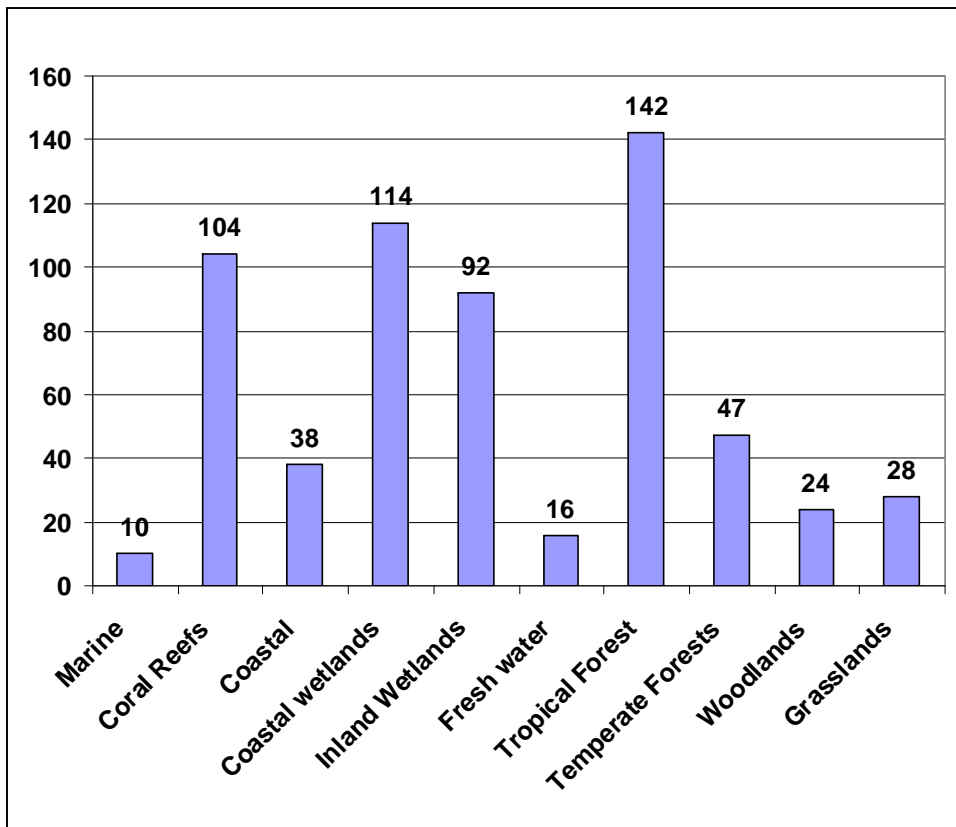


TEEB for Citizens (D4)
Launch in late 2010

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TEEB valuations database (by biome and region)

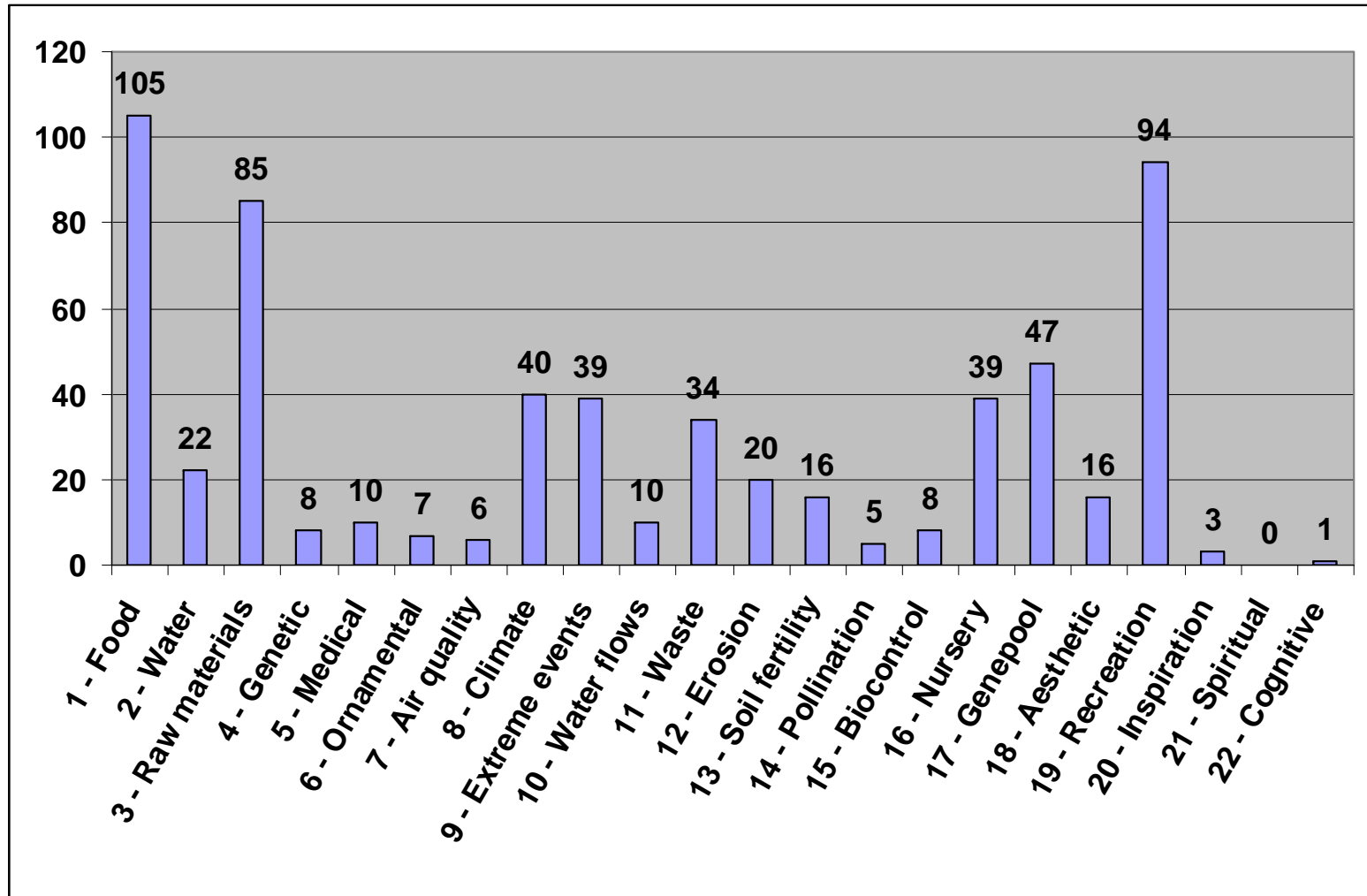


Source: TEEB D0 chapter 7 (draft March 2010)

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TEEB valuations database (by service)



Source: TEEB D0 chapter 7 (draft March 2010)

D1 Challenge : Evaluate ECUADOR'S Conservation Proposal (Yasuni Preserved, Oil stays in ground) ?



Yasuni National Park –
the most biodiverse
wilderness on Earth

D1 Challenge (cont'd) ECUADOR YASUNI National Park / ITT Oilfield Proposal

- Ecuador commits **not to exploit 20% of its proven oil reserves** (846 million barrels), (ITT oil fields, within the **Yasuní National Park**.
- **Ecuador's Opportunity Cost** : (@ US\$ 75 WTI) is an NPV of **US\$11.6 billion**.
- **World's CO₂ Storage** : 407 million Mt CO₂; @ market (EU-ETS), US\$28.85/ Mt, **US\$11.7 billion**.
- **Note : Social Cost of CO₂** far exceeds market price ...
- ***ECUADOR seeks investors now***

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Environmental Economics Group, 19th May 2010

Thank You !



Federal Ministry for the Environment, Nature Conservation and Nuclear Safety



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